Informal comments on the *Joint Reliability Plan Track Two*
Unified Long Term Reliability Planning
Assessment Tool Concept Paper and the April 9, 2015 workshop

Matt Barmack
Director, Market & Regulatory Analysis
Calpine Corp.
barmackm@calpine.com
925-557-2267

Calpine appreciates the opportunity to comment on the concept paper and associated workshop. The concept paper articulates a proposal to collect resource-level data on forward contracting and examine the economic viability of uncontracted resources. Uncontracted resources that are not economically viable potentially would be deemed at risk of retirement. Such retirements might be considered "inefficient" to the extent that they involve resources that are necessary to meet reliability requirements.

As articulated at the workshop, Calpine's primary concern about the proposal is that it does not include a robust analytic framework to identify whether potential retirements of uncontracted resources are inefficient. The concept paper seems to propose to use simple screens to determine whether a resource is necessary for reliability, e.g., whether or not it is located in a local area or whether it has certain flexible operating characteristics. Such screens may fail to identify resources that are necessary for system reliability. While high current planning reserve margins suggest that system reliability is not at risk, the over-counting of renewables, hydro, imports, and demand-side resources in planning reserve margins artificially inflates planning reserve margins and provides a misleading view of prospective reliability.[1]

Instead of simple screens, Calpine recommends using SERVM, the same tool that Staff has proposed to use to perform an analysis of the economics of contracted resources, or some other reliability analysis, such as the production cost simulations similar to those developed by CAISO for LTPP, to develop a more robust view of intermediate-term reliability to determine whether potential retirements are inefficient.

Calpine elaborates on this recommendation below in answers to the specific questions posed in section IV.B. of the concept paper.

1. General Comments

    a. **Overall Framework**: Does the proposed two-part approach sufficiently address issues raised in the JRP scoping memo and, in general, will it provide for an improved reliability planning

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[1] For example, in its risk-of-retirement analysis, ORA concluded that the retirement of approximately 2.4 GW of capacity would result in capacity shortages of up to 1.4 GW in 2021 based on 2014 LTPP Trajectory Assumptions, i.e., that there would be only 1 GW of excess capacity despite the fact that CPUC Staff's projected planning reserve margin for the same scenario and year is 121%, i.e., more than 3 GW above the 15% planning reserve margin target. (See http://www.ora.ca.gov/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=2831&libID=2853 and http://www.cpuc.ca.gov/NR/rdonlyres/65FB0FED-7463-4E17-9E3D-B2D38A589675/0/SummaryLoadandResourceScenariosinExcelv2.xls.)

framework? Will the proposed modeling approach give parties a better understanding of the potential for inefficient resource retirements within the next ten years?

The collection and publication of forward contracting data will provide useful information to the market on the supply and demand of capacity on a multi-year forward basis. As discussed above, such information has limited value unless it is combined with a realistic assessment of what capacity is actually needed. To provide a realistic assessment of what capacity is needed, Calpine recommends that the CPUC (or perhaps the CAISO) perform an intermediate-term reliability analysis using SERVM or production cost simulations similar to those developed by CAISO for LTPP

It is critical that such an analysis identify the gap between what is needed and what is under contract. At the workshop, Calpine and the CAISO offered alternative proposals for how this gap might be identified. Calpine recommended first determining which resources are at risk of retirement and then assessing reliability in SERVM with resources at risk of retirement removed. The CAISO proposed running SERVM with only contracted resources. Upon further reflection, while the approaches proposed by CAISO and Calpine would reach similar conclusions, Calpine believes that, for the purposes of determining what resources are necessary to maintain reliability, the CAISO approach is more useful because it will yield the specific quantities of uncontracted resources that are necessary to maintain reliability whereas the Calpine approach would only identify whether economically viable and contracted resources in aggregate are sufficient to maintain reliability.

On the other hand, with respect to the analysis of whether individual resources are economically viable, Calpine believes that it is more realistic to assume that all resources, not only contracted resources, will continue to operate, given that some resources may be able to cover their costs from short-term markets and/or will be contracted between the present and the year being simulated.

2. Needs and Supply Database Questions

a. General Database Questions

i. **Timing**: When should Staff release the annual update of the forward needs and supply database?

It would be helpful for Staff to release the forward needs and supply database in advance of when RA contracting and intermediate-term procurement takes place each year. RA procurement for the following delivery year typically accelerates after the issuance of the annual RA decision in or around June. The last few PG&E intermediate-term RFOs have been issued in the March/April time frame.

As discussed below, Calpine believes that it makes sense to collect contract data after LSEs have completed their year-ahead RA showings at the end of October. The data could then be collected in November and December and the results of any analysis of the data released in the first quarter of the subsequent year, presumably in advance of both annual RA contracting and intermediate-term RFOs.

ii. **Confidentiality**: Which information in the proposed database should be made public and which should remain confidential? How should the CPUC report / aggregate information for local area resource contracting that accounts for confidentiality?

Staff should endeavor to protect commercially sensitive information. To the extent possible, Staff should not reveal which specific resources are contracted except in cases where such information is already publicly available, e.g., the IOUs obtain approval for at least some of their intermediate-term contracts through the advice letter process, and, in many cases, suppliers announce the tenors and sizes (but not the pricing) of intermediate-term contracts in press releases and/or investor relations materials and/or SEC filings.

b. Load Forecast Database

i. **Disaggregation**: Obtaining future needs based on CEC IEPR forecast is complicated by the need to disaggregate CEC and CAISO forecasts to reflect CPUC jurisdictional LSEs. If the CEC IEPR forecast is used to assess future needs, how should this disaggregation be performed?

Calpine has no comments on how IEPR forecasts should be incorporated in the needs and supply database. Calpine believes that the type of reliability analysis recommended in the introduction to these comments and in the answer to question 1 would reflect the loads and resources of non-jurisdictional LSEs within the CAISO footprint, so for the purposes of that analysis, it may not be necessary to disaggregate IEPR load forecasts.

c. Available Supply Database

i. **LTPP Deficit**: The difference between LTPP authorizations and CPUC-approved additions reflects an expected future deficit in the available supply database. How can this deficit be incorporated into the available supply database in a manner that is consistent with LTPP procurement targets, while not biasing what resources could fill the deficit? With what spatial / temporal granularity?

Authorized procurement should be incorporated into the available supply database in a manner that reflects the procurement authorization and the IOUs' procurement protocols. For example, for the recent SCE LCR RFO, while it would have been difficult to predict ex ante what SCE ultimately procured, there were significant constraints on the procurement, e.g., the procurement was restricted to the Moorpark and Southwest LA Basin sub-areas. In addition, there were bounds on the amount of storage, other preferred resources, and gas-fired generation that SCE was allowed to procure. In addition, over the course of the RFO, SCE imposed additional constraints on its procurement, e.g., it did not procure storage with less than four hours of duration at its rated capacity or DR with a notification time of greater than 20 minutes. Modeling in JRP should reflect such constraints to the extent that they are public.

ii. **Data availability**: In addition to information captured within the LTPP process, is any formal data request needed to more accurately capture from CPUC jurisdictional LSEs information related to available supply or retirements occurring by year within the next ten years?

Calpine is unaware of any additional information, beyond information on contracting, that would be required for the supply database and is not already collected through the LTPP process.

d. Contracted Resources Database

i. **Template**: Does the template developed by Staff (sent as a separate attachment) sufficiently capture LSE contracting data for the purposes of this analysis? Is any data missing, or could any data be collected more efficiently?

Calpine has no specific comments on the template.

ii. **Timing**: When is the ideal time each year to have CPUC staff collect the contracting data from CPUC-LSEs? Should this request and reporting occur annually? For the purpose of the upcoming study, is it acceptable to parties to include an additional off-schedule data request?

A significant fraction of all RA contracting takes place between the issuance of the annual RA decision in or around June and the year-ahead showing deadline at the end of October. Calpine believes that it makes sense to collect contract data that reflect the completion of this annual cycle, i.e., to collect contract data in the November-December time frame. Further, as discussed above, collecting data at the end of each year would ensure that it could be compiled, analyzed, and shared to inform procurement commencing the second quarter of the following year.

3. Economic Risk Of Retirement Modeling Questions
a. **Stochastic Inputs**: Are the stochastic inputs sufficient to capture expected uncertainties and variability?

As discussed at the workshop, it may also be important to capture variations in hydro conditions and gas prices.

b. **Fixed O&M Costs**: What should be the basis for calculating fixed O&M costs?

Based on discussion at the workshop, Calpine understands that it is Staff's intent to compare the energy and AS gross margins for a resource to its going-forward fixed costs. Such costs include but are not limited to fixed O&M. They also include property/ad valorem taxes, insurance, and potentially corporate taxes as well. Most of the resources potentially at risk of retirement are relatively modern combined cycles or combustion turbines. For these resources, the CEC's estimates of going-forward fixed costs for generic combined cycles and combustion turbines may serve as suitable proxies.

In addition, the analysis should recognize that resources at risk of retirement have salvage value, i.e., if a resource owner cannot recover not only the costs of operating a resource but a return that is higher than what the resource owner would earn by selling or re-deploying the equipment from a resource, then it may be economic for the owner to retire the resource. For example, major pieces of equipment at a typical combined cycle or combustion turbine, such as transformers and combustion turbines, are valuable and can be re-deployed.

The analysis might account for salvage value by applying a crude multiplier to estimates of going forward fixed costs (as has been done in the derivation of the proposed CPM soft offer price cap). Otherwise, an annual salvage value "cost" could be derived by applying a required return to an estimate of the value of the equipment that is salvageable at a plant.

c. **Local Capacity Technical Studies**: CAISO Local Capacity Technical Studies examine the importance of generators for local reliability. How can results of the CAISO Local Capacity Technical studies be used to understand inefficient retirements?

Local Capacity Technical Studies can be used to identify resources that are strictly necessary to meet local capacity requirements in specific Local Capacity Areas and sub-areas. Local Capacity Technical Studies also identify the "effectiveness" of specific resources for resolving particular contingencies that constitute the basis for local or sub-area requirements. It is unclear how such information could be used to understand inefficient retirements other than to identify resources that while not strictly needed may be more or less useful for maintaining local reliability.

d. **Inefficient Retirements**: "Whether a resource is determined to be at risk of inefficiently retiring is dependent upon a factor test, which encompasses both the valuable attributes of the resource and its financial situation." How can a factor test be developed to inform determination of inefficient retirement? What additional factors should be considered?

 As an initial screen, Staff should determine whether a resource is necessary to satisfy estimates of prospective system, local, and flexible RA requirements, assuming whatever counting rules happen to be in place. As flexible RA counting rules, for example, change then Staff's screen should change. This initial screen may identify resources that are needed for local reliability. As discussed above, given what currently counts towards generic RA requirements, Calpine doubts that this initial screen will ever identify resources that are needed for system reliability. Similarly, given the surplus of capacity that meets the current definition of flexible RA, even excluding OTC units that are expected to retire, Calpine thinks that it is unlikely that the initial screen will identify resources that are needed to meet flexible RA requirements. Consequently, to ensure that resources that are needed to assure reliability but may not be needed to meet system and flexible RA requirements as currently defined, Calpine believes that it is important to perform additional analysis using a reliability model such as SERVM.

e. **Sensitivity Studies and Benchmarking**: What sensitivity and benchmarking studies, in addition to what are described in this paper, should be performed?

Given the uncertainty around the continued operation of Diablo Canyon, it may be useful to perform both economic and reliability analyses both with and without Diablo Canyon.

With respect to benchmarking, it might be useful to compare Staff's estimates of energy and AS gross margins for a combined cycle and a combustion turbine to similar estimates that the CAISO includes in its annual Market Issues and Performance report.[2] The CAISO's estimates are not directly comparable to what Staff have proposed to calculate because they are retrospective and based on deterministic analysis rather than prospective and based on a stochastic analysis. Nevertheless, it would be surprising if the two approaches yielded radically different answers.

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[2] See Section 1.3 of https://www.caiso.com/Documents/2013AnnualReport-MarketIssue-Performance.pdf.